

Summer Assignment for Students Going Into Precalculus

Directions:

- ❑ Complete this packet one topic at a time following the directions below:
 - ❑ Complete all problems in the section, showing all of your work. If there is no work to show, write a sentence or two explaining your answer. **Only questions with work and/or explanations will be counted as complete.**
 - ❑ Write your final answer/solution on the chart on the next page.
 - ❑ Answers will be posted later this Summer. Check your answers using the answer key on the last page of this packet.
 - ❑ If a question is wrong, that's okay! Check your work for any mistakes and try again :).
 - ❑ If multiple questions are wrong or you don't understand how to arrive at the correct answer, it's probably time to get extra help (see below).
- ❑ Bring this packet with you on the first day of school.
 - ❑ While we will be looking at the chart to see trends across the class, your grade will be based on **completion** not correct answers.
 - ❑ Please draw a ☆ next to any topic you would like your teacher to review with you or the whole class.

Name: _____

Solution Chart

1.	21.
2.	22.
3.	23.
4.	24.
5.	25.
6.	26.
7.	27.
8.	28.
9.	29.
10.	30.
11.	31.
12.	32.
13.	33.
14.	34.
15.	35.
16.	36.
17.	37.
18.	38.
19.	39.
20.	40.

Name: _____

Simplify each of the following radical expressions without use of a calculator.

1. $\sqrt{27}$

2. $\sqrt{72}$

3. $\sqrt{150}$

4. $\sqrt{124^2}$

5. $\sqrt{108}$

6. $\sqrt{80}$

7. $\sqrt{13}\sqrt{13}$

8. $\sqrt{2}\sqrt{72}$

9. $(3\sqrt{5})^2$

Memorize these Pythagorean Triples that are commonly used in Trigonometry.

(A Pythagorean Triple is a set of three positive integers that satisfy the Pythagorean Theorem.)

$a = 3, b = 4, c = 5$

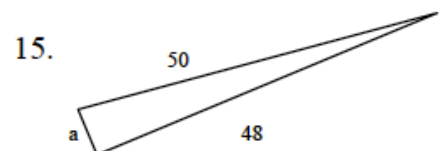
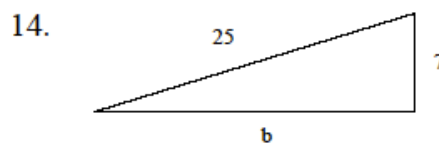
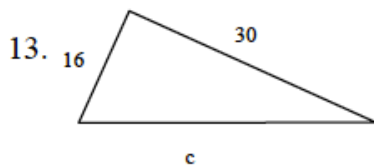
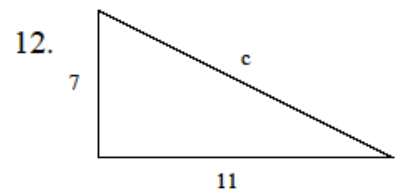
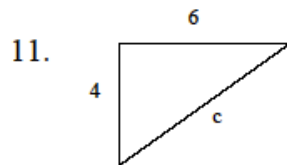
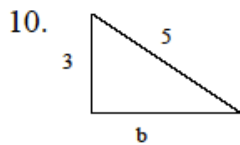
$a = 6, b = 8, c = 10$

$a = 5, b = 12, c = 13$

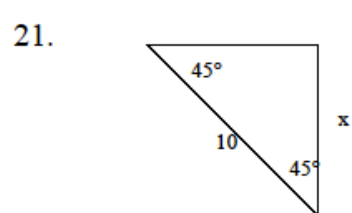
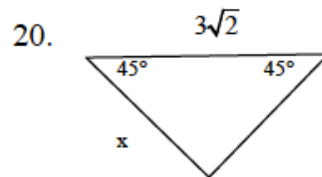
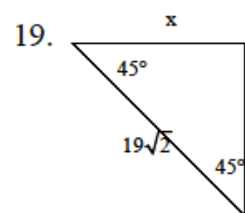
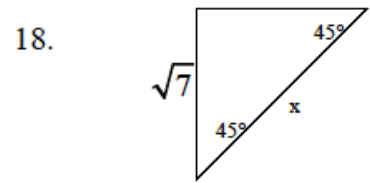
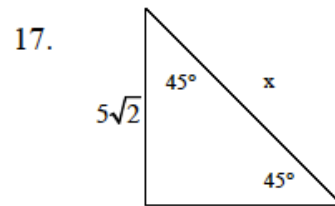
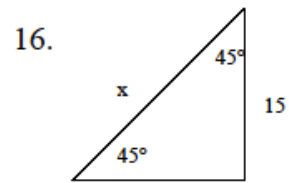
$a = 8, b = 15, c = 17$

$a = 7, b = 24, c = 25$

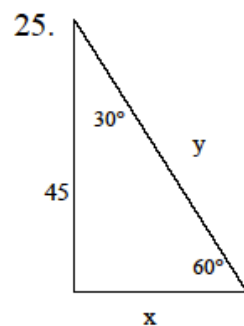
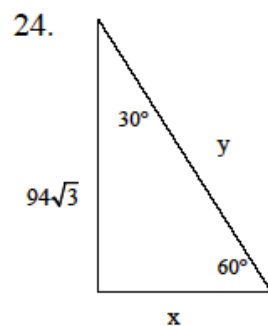
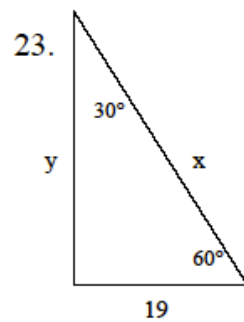
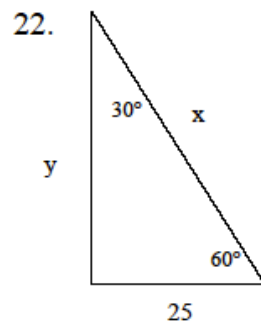
Use the Pythagorean theorem to find the unknown side lengths. Tell whether the side lengths form a Pythagorean Triple.



Find the length of the missing side in each 45-45-90 triangle. Write your answers both in radical form and as a decimal rounded to the nearest tenth.



Find the value of each variable in the following 30-60-90 triangles. Write your answers in radical form and as a decimal rounded to the nearest tenth.



Perform any indicated operations and simplify the following rational expressions.

26. $\frac{15x^2y^4}{35xy^7}$

27. $\frac{2a^2+10a}{3a^2+15a}$

28. $\frac{2}{x^2-12x+27} \cdot \frac{x^2-9}{4}$

29. $\frac{4}{x^2+3x+2} + \frac{5x+1}{x^2+3x+2}$

30. $\frac{3x}{4} + \frac{5x}{6}$

31. $\frac{3x-1}{6} + \frac{2x+3}{5}$

32. $\frac{1}{5x} \div \frac{5x^3-20x^2}{9x-36}$

33. $\frac{3}{x+7} + \frac{4}{x-8}$

Solve each proportion.

34. $\frac{x-2}{x} = \frac{x}{x+3}$

35. $\frac{x-1}{x+2} = \frac{10}{3x-2}$

Solve by factoring.

36. $3x^4 - 48x^2 = 0$

37. $x^3 - x^2 - 20x = 0$

38. $x^4 - 5x^2 + 4 = 0$

Solve using the Quadratic formula. Write the solution as a decimal rounded to two decimal places.

39. $3x^2 + 4x - 5 = 0$

40. $20x - 16x^2 = -5$